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AUTHOR Wilkinson, Ronald S.
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ABSTRACT

The teaching materials listed in this annotated bibliography emphasize an observational and "hands-on" approach to awakening students' interest in their universe. The sources, which are for teachers and students, can be used to create courses, units, or concepts to stimulate learning. Individual and class projects range from instructive visual activities to the construction of telescopes. Selections about the history and mythology of astronomy are included. Sections in this document include the following: (1) Introductions to Astronomy and Field Guides; (2) Topical and Specialized Works; (3) Atlases, Charts, Maps, and Related Guides; (4) Constellation Figures, Mythology, History, Biography; (5) Individual and Class Projects; and (6) Periodicals. (PR)

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SELECTED TEACHING AIDS:
ASTRONOMY FOR SCHOOLS

Ronald S. Wilkinson

The teaching materials listed in this bibliography, all in print as of January 1991, emphasize an observational and "hands-on" approach to awakening students' interest in their universe. The sources, which are for teachers and students, can be used to create courses, units, or concepts to stimulate learning. Individual and class projects range from instructive visual activities to the construction of telescopes. Books about the history and mythology of astronomy are included.

Introductions to Astronomy and Field Guides

Dunlop, Storm. Astronomy; a step-by-step guide to the night sky. New York, Collier Books, 1985. 192 p. (Macmillan field guides) QB63.D92 1985

Somewhat more advanced than Muirden's Astronomy Handbook (see below).

Menzel, Donald H., and Jay M. Pasachoff. A field guide to the stars and planets. With monthly sky maps and atlas charts by Wil Tirion. 2nd ed., completely rev. and enl. Boston, Houghton Mifflin, 1983. 473 p. (The Peterson field guide series) QB64.M4 1983

A handy guide for those with a little experience, but not as easy or pleasant to use as the classic field guide on this level, by William T. Olcott and Edmund W. Putnam, Field Book of the Skies, first published in 1929 and later revised, finally by R. Newton Mayall and Margaret W. Mayall, now out of print but available in many school libraries.

Moché, Dinah L. Astronomy. Star maps by George Lovi. 3rd ed. New York, Wiley, c1987. 291 p. QB45.M696 1987

A "self-teaching guide" in workbook format, suitable for high schools.

Muirden, James. Astronomy handbook. New York, Arco Pub., c1982. 189 p. QB64.M855 1982

A "first book" for junior high level and upwards; includes projects.

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- Peltier, Leslie C. Leslie Peltier's guide to the stars. With illus. by the author. Milwaukee, AstroMedia; Cambridge, Eng., Cambridge University Press, c1986. 185 p. QB63.P43 1986
Observing with naked eye and binoculars; suitable for junior high level and upwards.

Topical and Specialized Works

- Covington, Michael A. Astrophotography for the amateur. Cambridge, Eng., New York, Cambridge University Press, 1985. 168 p. QB121.C68 1985
What can be accomplished at various levels of astrophotography, with and without a telescope.
- Jackson, Francis, and Patrick Moore. Life in the universe. 2nd ed. New York, W. W. Norton, 1989, c1987. 162 p. QB54.J23 1989
The origins of life and the possibilities of life on other worlds.
- Moore, Patrick. Exploring the night sky with binoculars. Cambridge, Eng., New York, Cambridge University Press, 1986. 203 p. QB63.M63 1986
What can be seen with binoculars of various powers.
- Muirden, James. The amateur astronomer's handbook. 3rd ed. New York, Harper & Row, c1983. 472 p. QB64.M85 1983
A comprehensive guide for students who have read a basic introduction.
- Muirden, James. How to use an astronomical telescope; a beginner's guide to observing the cosmos. New York, Linden Press/Simon & Schuster, 1985. 397 p. QB88.M85 1985
Useful comparisons of telescope designs, with observing techniques and possibilities.
- The New solar system. Edited by J. Kelly Beatty, Andrew Chaikin; introd. by Carl Sagan. 3rd ed. Cambridge, Eng., New York, Cambridge University Press; Cambridge, Mass., Sky Pub. Corp., 1990. 326 p. QB501.N47 1990
An up-to-date survey of what is known about the Sun's system after the achievements of the eighties.
- Sagan, Carl. Cosmos. New York, Random House, c1980. xvi, 365 p. QB44.2.S235
Based on the popular and informative TV series.

Schaaf, Fred. The starry room; naked eye astronomy in the intimate universe. Illus., Doug Myers; technical drawings, Guy Ottewell. New York, Wiley, c1988. 264 p. (Wiley science editions)

QB64.S43 1988

Creative essays promoting a return to naked-eye observation.

Silk, Joseph. The big bang. Rev. and updated ed. New York, W. H. Freeman, c1989. 485 p.

QB981.S55 1989

A relatively simple account of the new cosmology.

Atlases, Charts, Maps, and Related Guides

Arthur, D. W. G., A. P. Agnieray, and R. H. Pellicori. Lunar designations and positions. Quadrants I-IV. Tucson, Ariz., Lunar and Planetary Laboratory, University of Arizona, c1964. 4 maps. 58 x 69 cm.

"The map corresponds to a lunar sphere with a radius of 50 centimeters."

Shows the moon's near side in considerable detail.

Chandler, David. The night sky, shown in dual perspective for reduced distortion. For use in the range 38°-50° North Latitude; exact for 40°. [Planisphere] Cambridge, MA, Produced in cooperation with Sky Pub. Corp., c1977. 25 x 25 cm.

A simple and very useful two-sided "star wheel" for locating celestial objects and demonstrating their apparent movements; also available for other latitudes.

Mars globe from Viking imagery. Scale ca. 1:22,250,000. Belmont, Mass., Sky Pub. Corp., c1990. 1 globe 31 cm. in diam. + 1 sheet ([8] p.)

Norton, Arthur P. Norton's 2000.0; star atlas and reference handbook (epoch 2000.0). 18th ed., rev. under the editorship of Ian Ridpath. Harlow, Eng., Longman Scientific & Technical; New York, Wiley, 1989. 179 p.

QB65.N7 1989

A standard atlas and astronomer's guide, first published in 1910. The charts locate about 8,700 stars to visual magnitude 6.49 and about 600 deep-sky objects.

Ottewell, Guy. Astronomical calendar. 1974+ Greenville, S.C., Sponsored by the Dept. of Physics, Furman University, in co-operation with the Astronomical League. annual.

The 1991 issue (69 p.) contains a sky chart and timetable of events for each month, data on planetary movements and other phenomena, and much background material.

Tirion, Wil. Sky atlas 2000.0; 26 star charts, covering both hemispheres. Deluxe ed. Cambridge, Mass., Sky Pub. Corp.; Cambridge, Eng., Cambridge University Press, 1981. 2 folded p., 26 folded leaves; 26 charts. QB65.T54 1981 fol.

Transparent overlay of projection grids laid in.

Locates about 43,000 stars to visual magnitude 8.1 and about 2,500 deep-sky objects. Also available in the form of 27 separate, flat sheets, with black stars on white background or white stars on black background.

Constellation Figures, Mythology, History, Biography

Allen, Richard H. Star names, their lore and meaning. New York, Dover Publications, 1963. xiv, 563 p. QB802.A4 1963

"An unabridged and corrected republication of the work first published ... in 1899 ..."

Ashbrook, Joseph. The astronomical scrapbook: skywatchers, pioneers and seekers in astronomy. Edited by Leif J. Robinson. Introd. by Owen Gingerich. Cambridge, Eng., New York, Cambridge University Press; Cambridge, Mass., Sky Pub. Corp., 1984. 468 p. QB51.A77 1984

A collection of historical and topical articles first published in Sky & Telescope.

Cohen, Martin. In quest of telescopes. Cambridge, Mass., Sky Pub. Corp., 1980. 131 p.

What professional astronomers do; an autobiography that includes vocational guidance.

Hadingham, Evan. Early man and the cosmos. New York, Walker, 1984. 271 p. QB16.H3 1984

An introduction to the relatively recent discipline of archaeoastronomy.

Moore, Patrick. Watchers of the stars; the scientific revolution. New York, G. P. Putnam's Sons, 1974. 239 p. QB29.M58 1974

The lives and contributions of Copernicus, Tycho Brahe, Kepler, Galileo, and Newton.

Pannekoek, Anton. A history of astronomy. New York, Dover Publications, 1989, c1961. 521 p. QB15.P28313 1989

The standard 20th century history.

Peltier, Leslie C. Starlight nights; the adventures of a stargazer. Illustrated by the author. New York, Harper & Row, 1965. 236 p. QB36.P4A3

The autobiography of an eminent American amateur astronomer. Available as a paperback reprint from Sky Publishing Corporation.

- Preston, Richard. First light. New York, Atlantic Monthly Press, 1987. 263 p. QB44.2.P74 1987
An account of astronomers working at Palomar, with digressions on the background of major and minor figures in the construction, operation, and use of the telescopes there.
- Staal, Julius D. W. The new patterns in the sky; myths and legends of the stars. Blacksburg, Va., McDonald and Woodward Pub. Co., 1988. 300 p. QB801.7.S72 1988
Revised edition of Patterns in the Sky (1961).
Mythology of the constellations from many cultures, with numerous illustrations of the figures.

Individual and Class Projects

- Apfel, Necia H. Astronomy projects for young scientists. New York, Arco Pub., c1984. 122 p. QB62.7.A64 1984
Instructions for such activities as building a simple planetarium, detecting cosmic rays, and timing occultations.
- Ballard, Jim. The handbook for star trackers; making and using star tracking camera platforms. Cambridge, Mass., Sky Pub. Corp., c1988. 124 p.
How to make platforms for guided celestial photography from simple materials.
- Berry, Richard. Build your own telescope. New York, C. Scribner's Sons, c1985. 276 p. QB88.B47 1985
How to construct five different telescopes using readily available tools and materials.
- Schaaf, Fred. Seeing the sky: 100 projects, activities, and explorations in astronomy. With illus. by Doug Myers. New York, Wiley, c1990. 212 p. QB64.S427 1990
A variety of ideas, chiefly promoting visual observations.

Periodicals

- Astronomy. v. 1+ Aug. 1973+ Waukesha, WI, Kalmbach Pub. Co. monthly. QB1.A7998
For the less advanced reader.
- Odyssey. v. 1+ Jan. 1979+ Milwaukee, WI, AstroMedia Corp. monthly. QB46.O3a
For young readers. Includes scientific articles and news as well as suggestions for related projects, experiments, and puzzles in the field of astronomy.

Sky & telescope. v. 1+ Nov. 1941+ Cambridge, Mass., Sky Pub. Corp. monthly. QB1.A536

Some contributions are more advanced than those in Astronomy. Both periodicals have informative articles and excellent coverage of celestial events.

Sky calendar. 1969+ East Lansing, Abrams Planetarium, Michigan State University. monthly.

Each issue, consisting of a single sheet, provides sketches of noteworthy celestial occurrences, day by day. A simplified sky chart appears on the verso.